

# Comparison of Chiropractic Treatment Outcomes Depending on the Language Region in Switzerland: A Prospective Outcomes Study

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## ABSTRACT

**Objectives:** Switzerland has optimal conditions for research of language-based cultural influences on low back pain (LBP). The aim of this study was to compare LBP treatment outcomes after chiropractic care between patients from the German- and French-speaking regions of Switzerland.

**Methods:** Baseline Numeric Rating Scale for pain (NRS), demographic, and Oswestry Disability Index (ODI) data were collected from patients presenting to 51 Swiss-German and 12 Swiss-French chiropractors. Prospective outcome data included the proportion reporting clinically relevant improvement on the Patient Global Impression of Change scale and the NRS change scores collected at 1 week; 1, 3, and 6 months; and 1 year. ODI change scores were collected until 3 months. The proportion improved between the 2 groups was compared using the  $\chi^2$  test. NRS and ODI change scores were compared using the unpaired *t* test.

**Results:** At baseline, only patient age comparing 853 Swiss-German and 215 Swiss-French patients revealed a significant difference. The Patient Global Impression of Change, NRS, and ODI had no significant differences between both patient groups up to 6 months. Between 6 months and 1 year the proportion reporting improvement continued to increase to 83.5% for German-speaking Swiss but reduced to 73.1% for French-speaking Swiss ( $P = .01$ ). The NRS change scores were also higher for German speaking Swiss at 1 year compared with Swiss-French citizens ( $P = .01$ ).

**Conclusion:** Treatment outcome data for LBP are comparable in the German and French parts of Switzerland until the 1-year time point, when people located in the French-speaking regions are more likely to have an increase in pain levels. (J Chiropr Humanit 2017;xx:0-8)

**Key Indexing Terms:** *Low Back Pain, Mechanical; Treatment Outcome; Cultural Diversity; Chiropractic; Spinal Manipulation*

## INTRODUCTION

After Gordon Waddell published a new multidimensional model on underlying causes of low back pain (LBP) in 1987, the scientific community began to turn their attention from a strictly biological model to a biopsychosocial model of LBP.<sup>1,2</sup> There have been many studies published on the psychological and social aspects of LBP.<sup>3-9</sup> Psychological factors, including depressive

mood, distress, somatization, catastrophizing, passive coping, and fear avoidance, have been reported as negative predictors for LBP improvement.<sup>5,10</sup> Employment circumstances, formal education status, health care/insurance system, and ethnocultural aspects are the main social components.<sup>8,11-15</sup> It is known that cultures and norms vary between countries and even within countries if language and customs significantly vary.<sup>8,14,15</sup>

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## Sociocultural Aspects of Low Back Pain in the Literature

The issue of ethnocultural effects on pain and especially LBP has been a controversial and much disputed subject within the literature. Some authors differentiate between the biologically determined terms *race* and *culture* or *ethnicity* as dynamic social ideas, whereas other authors use these terms as synonyms.<sup>16,17</sup> In this study the terms *culture* and *ethnicity* are based on social attitudes and beliefs in the context of a response to a health problem. This corresponds

to a definition of culture by M.M. Free<sup>18</sup>: “Culture is a concept defined as a set of societal rules and standards developed over time and shared by the members of a particular society.”

In relation to LBP, different characteristics have been taken as a proxy for racial and cultural influence: language, skin color, nationality, immigration, and indigenous background.<sup>9,13-15,19-25</sup> However, further social factors influencing LBP, including workplace, access to care, and formal education status, can operate as confounding factors while exploring cultural differences.<sup>26,27</sup> To avoid these possible influences it is necessary to perform studies in a society where persons with different cultural backgrounds have an equal social security system and similar educational levels/opportunities and workplace distribution. Switzerland, a small country in the center of Europe with 8.3 million inhabitants (as of 2015) and 4 language-based microcultures within the overall Swiss culture, is an ideal site for such studies.<sup>28</sup>

### Switzerland, a Country With Language-Based Cultural Differences

There are 4 official languages in Switzerland: German, French, Italian, and Romansch. In a recent federal survey, 63.3% of the population reported speaking German or Swiss-German as their main language.<sup>29</sup> French, with 22.7% of the population, was the second most spoken language. Different studies on variable medical topics such as organ donation, use of hearing aids, antibiotic consumption, patients' needs in doctor-patient consultations, and mortality as a result of different diseases comparing Swiss-German, Swiss-French, and Swiss-Italian citizens have been conducted and revealed a culture-based diversity.<sup>30-34</sup> However, not only medical properties have cultural differences. Political elections often indicate a significant barrier between the Swiss-German and Swiss-French voters. Swiss people humorously call it the *Röstigraben*, a traditional Swiss-German meal with hashed potatoes.<sup>35</sup>

**The Burden of Low Back Pain in Switzerland.** As with most developed countries, low back pain is a major health problem in Switzerland. The Swiss Federal Office of Statistics stated the prevalence of people who suffered mild or strong LBP in the previous 4 weeks as 37.6%.<sup>36</sup> LBP was found to be the second most work-relevant disease after weakness and tiredness. A recent survey conducted on behalf of the Swiss League of Rheumatology reported 78.7% having experienced LBP at least once in the past year.<sup>37</sup> The total direct costs of LBP in Switzerland for medical treatment in 2005 were quoted at €2.6 billion, which corresponded to 6.1% of the total health care expenditure in Switzerland.<sup>38</sup> The indirect costs were calculated at approximately €6.3 billion.

**Differences in Low Back Pain Between Swiss-German and Swiss-French Citizens.** Investigations comparing Swiss-German and Swiss-French citizens for LBP-caused absenteeism from

work found that both groups declared similar percentages of absence. A total of 17% of Swiss-German citizens and 19% of Swiss-French citizens have been absent once from work, and 16% of the Swiss-German and 18% of the Swiss-French have been absent several times from work.<sup>37</sup> Zurbruggen et al<sup>39</sup> and Schulz et al<sup>19</sup> compared workplace and psychosocial differences in LBP patients between the language regions of Switzerland. Swiss-German citizens attributed LBP more likely to hard physical labor, whereas the Swiss-French linked it more to psychosocial stress. Furthermore, they found differences in coping strategies with LBP. Swiss-Germans tended to react with active coping, believed in self-efficacy, and rated stress positively. Conversely, Swiss-French people chose passive coping strategies and had poor self-efficacy and a high analgesic use. Another interesting finding was that the Francophones had a stronger belief in physicians' influence on one's back pain.

As noted earlier, many studies have investigated ethno-cultural influences on LBP, a few of which were conducted in Switzerland. However, little research has been published on cultural influences on treatment outcomes for LBP. No previous studies have specifically investigated the differences in treatment outcomes after chiropractic care between Swiss-German and Swiss-French citizens with LBP. This is relevant, considering that they have significantly different coping strategies for their pain and attitudes as to the cause.<sup>19,39</sup> Outcome data can be dependent not only on patients but also providers properties, social factors, and health care systems. By matching 3 out of these 4 factors (ie, social factors, health care system, and provider education), this study aims to compare treatment outcomes after chiropractic care between people with LBP in the Swiss-German and Swiss-French regions to see if patient cultural factors may be related to treatment outcomes.<sup>40,41</sup>

## METHODS

The present study is a secondary analysis of data from a prospective outcomes study comparing 2 cohorts of LBP patients presenting to chiropractors practicing in either the German- or French-speaking regions of Switzerland.

### Patients

All active members of the Swiss Chiropractic Association were asked to participate in this study by sending them a notification by e-mail and presenting the study protocol at the annual continuing education convention. Sixty-three Swiss chiropractors contributed a total of 1101 patients with acute or chronic low back pain to this prospective cohort outcomes study with a follow-up of 1 year. Predictors of improvement after chiropractic treatment were previously published using this database, but patient language and location in either the German- or French-speaking regions of Switzerland were not factors included in that prediction

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